

PARTNERSHIPS IN WATERSHED RESTORATION

MARCH 2001

FISH PASSAGE AND WATERSHED ENHANCEMENT FOR OREGON

ROGUE RIVER, OREGON

FOOTS CREEK FISH PASSAGE IMPROVEMENT

PARTNERSHIP

The Bureau of Reclamation's Lower Columbia Area Office (LCAO) is a partner with local, State, and Federal agencies to enhance anadromous fish passage primarily at non-Federal facilities in the Rogue River basin in southwestern Oregon. This effort is part of a commitment by Reclamation to support the Oregon Plan for Salmon and Watersheds. This initiative encourages collaborative and voluntary recovery actions for "threatened" and "endangered" salmon and steelhead through local watershed councils.

Reclamation is also a member of an interagency team to help implement high-priority projects in the basin. This state program was designed to find solutions to fish passage problems associated with diversion dams constructed by private irrigators. Reclamation, through its LCAO Rogue River Field Office, is providing critically needed engineering design services in an effort to eliminate such barriers in the basin.

The Rogue Basin Coordinating Council (RBCC) was formed in 1998 to coordinate and promote the work of eight watershed councils within the Rogue River basin. Communities in the basin range from Gold Beach on the Pacific Ocean to Trail, about 155 miles upstream.

To support the RBCC, the Rogue Basin Fish Access Team (RBFAT) was formed to identify and prioritize fish passage barriers within the basin and form a strategic plan for their removal or modification. The Strategic Plan was completed in 2000 and RBFAT now serves as an advisory committee to RBCC. While planning on the Footh Creek Dam commenced prior to approval of the Strategic Plan, its improvement was one of the plan's objectives.

LOCATION

Footh Creek is a tributary of southwestern Oregon's Rogue River and is located at river mile 113.5, about 3 miles upstream from the city of Rogue River. The creek's mouth is on the south (left) side of the river, near the Valley of the Rogue State Park. Located about one-half mile upstream from the mouth of the creek, Footh Creek Dam (photo 1) lies outside the boundaries of any of the watershed councils that are members of RBCC.

PROBLEM

Footh Creek is a productive coho salmon and steelhead stream. It all but dries up in the summer months, but flows in the winter months can reach several hundred cubic feet per second. A Deneil-type fish ladder was installed by Oregon Department of Fish and Wildlife (ODFW) in 1998 and was not as effective as hoped. The problem to be solved was how to make the diversion "fish friendly," a move which would improve the health of the anadromous fish stocks, which in turn would benefit all members of RBCC.

Since the dam was outside the boundaries of any of the member councils, RBCC assumed leadership of the Footh Creek Dam fish passage

improvement project. However, since RBCC is not set up to implement construction, a partner was needed to carry-out any actions. ODFW, a member of RBFAT, offered its assistance with the program through its Central Point Office.

Footh Creek Dam is a concrete dam about 5 feet high and 40 feet wide. In addition to being a barrier to fish passage, it causes unnecessary erosion and turbidity from the high energy plunge at the dam. The dam was installed about 50 years ago to provide irrigation and recreation water for the landowners who use the property. Finding an alternative to this diversion was a high priority to RBCC and ODFW. The present landowner uses the water diverted from the dam to fill, by gravity pipeline, a pond about 280 feet away. The pond is used for recreation, fire suppression, and generally improves the value of the property. Currently, the diversion right is for 9 gallons per minute (about 0.02 cubic feet per second), a decrease from the time of construction.

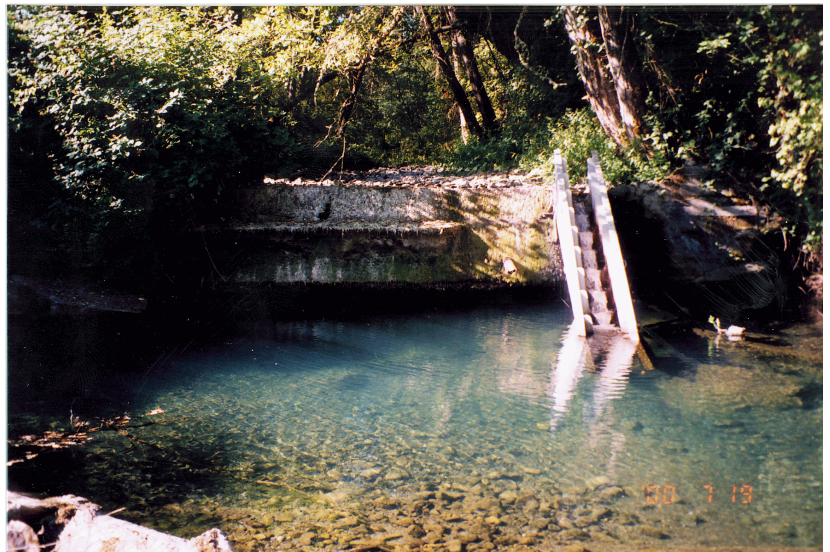


Photo 1. The Footh Creek Dam, shown in July 2000 prior to removal. A Deneil-type fish ladder was installed by ODFW. It failed to meet current standards and the force of higher flows over the dam increased erosion in the stream bed and created excess turbidity.

PLAN

The cooperation of the landowner was essential to the success of the project. Following initial discussions with the landowner, accompanied by field reviews of the dam and pond, Reclamation's Rogue River Field Office watershed engineer developed three potential options, each including profiles, layouts, and cost estimates. Two options utilized gravity to convey the water to the pond; the third was a pump-and-pipeline option. ODFW and Reclamation presented the options to the landowner for her review.



Photo 2. Six months after removal of the Footh Creek Dam, flows are healthy and barriers to fish passage are greatly reduced.

With the goals of a continued water supply for the pond and enhanced fish passage in the stream, the landowner carefully considered the options and their potential effects. Several concerns were addressed with some innovative problem-solving by the landowner and ODFW, and the decision was made to install the pump and pipeline.

This approach would permit at least the notching if not the complete removal of the dam. With the agreed plan, ODFW marshaled financial support for the project. Resources in various forms were provided by the landowner, Trout Unlimited (a non-profit, fish-advocacy group), ODFW staff, and Reclamation. The landowner agreed to pay for the electrical costs of operating the pump; Trout Unlimited for the pump and installation; and ODFW for removal of the dam by its staff. ODFW (60 percent) and Trout Unlimited (40 percent) partnered to install the required fish screen through ODFW's fish-screen cost-share program. Reclamation provided technical assistance throughout the project.

PROJECT

The dam was removed over the course of several days. The initial plan was the straightforward use of pneumatic jack hammers, heavy pry bars, cutting torches, "boulder busters" (shotgun-shell powered concrete fragmenters), and human muscle.

However, it wasn't suspected that the facility contained something other than conventional (to the modern-day builder) "re-bar" (reinforcing steel bar). During the period

of initial dam construction, the material apparently preferred for concrete reinforcement was narrow-gauge rail once used by the mining industry. This high-quality steel caused severe problems for the pneumatic drills and masonry bits. Many holes were drilled to avoid contact with the rails but the original engineers and construction workers were relentless in their placement of reinforcement. Eventually the left half of the dam was removed (photo 2).

ODFW took conservative measures to preserve as much of the riparian area as possible. This was accomplished by the use of a considerable amount of manual labor to avoid the use of heavy equipment. A local irrigation contractor installed the pump, its intake, and pipelines. The PVC pipe was buried from the pump shelter to the pond. The electrical service for the pump was provided by the existing service at the property.

RESULTS/MONITORING

With the removal of the dam, fish passage is now facilitated on Footh Creek. There is now a 6-mile-long reach of Footh Creek that is more easily negotiated by migrating salmonids. The sediments behind the dam

were allowed to remain in place until rising flows from the fall rains disperse the sediments naturally. The pump (photo 3) will require yearly attention and maintenance, and annual operation is estimated to be about \$50. ODFW will monitor use of newly accessible habitat by counting steelhead redds above and below the damsite each year.

COSTS

The cost for this project was about \$6,600. This does not include planning, engineering, or project management costs.

Earthwork	\$1,600
Pipe	\$700
Pump	\$700
Shelter	\$200
Fish screen; various other items	\$800
Dam removal	\$2,600

Further Information about the Footh Creek Dam fish passage improvement project or the Oregon Plan for Salmon and Watersheds may be obtained from:

- # Chuck Korson, Natural Resource Specialist, Bureau of Reclamation, Bend Field Office, 1375 SE Wilson Avenue, Bend, OR, 97702-1435.
Phone — 541-389-6541.
- # Chuck Fustish, STEP Coordinator, ODFW Central Point Office, 1495 Gregory Road, Central Point, OR 97502.
Phone — 541-826-8774.



Photo 3. The newly-installed 1-horsepower pump can convey water at the rate of 9 gpm through a 1¼-inch pipeline the 100-yard distance from an infiltration gallery in Footh Creek to the pond.